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=> fil reg
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DICTIONARY FILE UPDATES:  14 JUN 2007  HIGHEST RN 937362-79-3

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=> d his nofile

     (FILE 'HOME' ENTERED AT 11:17:12 ON 15 JUN 2007)

     FILE 'HCAPLUS' ENTERED AT 11:17:20 ON 15 JUN 2007
L1             2 SEA ABB=ON  PLU=ON  US2004131943/PN

     FILE 'REGISTRY' ENTERED AT 11:20:37 ON 15 JUN 2007
L2            22 SEA ABB=ON  PLU=ON  (11104-61-3/BI OR 11105-02-5/BI OR
                 11115-78-9/BI OR 11126-12-8/BI OR 12039-13-3/BI OR
                 12068-85-8/BI OR 12597-68-1/BI OR 12789-09-2/BI OR
                 1313-13-9/BI OR 13463-67-7/BI OR 181183-66-4/BI OR
                 24937-79-9/BI OR 25038-71-5/BI OR 51311-17-2/BI OR
                 7429-90-5/BI OR 7440-02-0/BI OR 7440-32-6/BI OR 7440-44-0
                 /BI OR 7782-42-5/BI OR 9002-84-0/BI OR 1313-99-1/BI OR
                 1344-70-3/BI)
                 D SCA

     FILE 'REGISTRY' ENTERED AT 12:03:26 ON 15 JUN 2007
L3             1 SEA ABB=ON  PLU=ON  L2 AND TITANIUM OXIDE/CN

     FILE 'HCAPLUS' ENTERED AT 12:06:26 ON 15 JUN 2007
L4         10107 SEA ABB=ON  PLU=ON  CURRENT?(3A)COLLECT?

     FILE 'REGISTRY' ENTERED AT 12:10:26 ON 15 JUN 2007
L5             1 SEA ABB=ON  PLU=ON  TITANIUM/CN

     FILE 'HCAPLUS' ENTERED AT 12:10:56 ON 15 JUN 2007
L6               QUE ABB=ON  PLU=ON  BATTERY
L7               QUE ABB=ON  PLU=ON  POSITIVE?(A)ELECTROD## OR CATHOD##
L8         14384 SEA ABB=ON  PLU=ON  (L5 OR TITANIUM OR TI)(L)L7
L9          3593 SEA ABB=ON  PLU=ON  (L3 OR (TITANIUM OR TI)(A)(OXIDE OR
                 DIOXIDE) OR TIO2)(L)L7
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L10      110427 SEA ABB=ON  PLU=ON  (INSIDE? OR INNER? OR INTERIOR? OR
                INTERNAL?)(2A)(SURFACE? OR LAYER? OR AREA?)
L11      105873 SEA ABB=ON  PLU=ON  (OUTSIDE? OR OUTER? OR EXTERIOR? OR
                EXTERNAL?)(2A)(SURFACE? OR LAYER? OR AREA?)
L12             QUE ABB=ON  PLU=ON  CONTAINER? OR CASE# OR CASING? OR
                CANISTER?
L13             QUE ABB=ON  PLU=ON  SUBSTRAT?
L14       14210 SEA ABB=ON  PLU=ON  (TI OR TITANIUM)(3A)(L12 OR L13)
L15         686 SEA ABB=ON  PLU=ON  L14 AND L8
L16         112 SEA ABB=ON  PLU=ON  L14 AND L9
L17         111 SEA ABB=ON  PLU=ON  L15 AND L16
L18           3 SEA ABB=ON  PLU=ON  L17 AND L4
L19           1 SEA ABB=ON  PLU=ON  L18 NOT L1
L20        1501 SEA ABB=ON  PLU=ON  (L3 OR (TITANIUM OR TI)(A)(OXIDE OR
                DIOXIDE) OR TIO2)(L)L10
L21           2 SEA ABB=ON  PLU=ON  L20 AND L4
L22           5 SEA ABB=ON  PLU=ON  L18 OR L21


=> fil hcap
FILE 'HCAPLUS' ENTERED AT 12:33:18 ON 15 JUN 2007
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FILE COVERS 1907 - 15 Jun 2007  VOL 146 ISS 26
FILE LAST UPDATED: 14 Jun 2007  (20070614/ED)

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 substance identification.

=> d l22 ibib abs hitstr hitind 1-5

L22  ANSWER 1 OF 5  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2004:795485  HCAPLUS  Full-text
DOCUMENT NUMBER:          141:334787
TITLE:                    Counter-electrode function in nanocrystalline
                          photoelectrochemical cell configurations
AUTHOR(S):                Papageorgiou, N.
CORPORATE SOURCE:         Laboratory of Photonics and Interfaces, Swiss
                          Federal Institute of Technology, Lausanne,
                          CH-1015, Switz.
SOURCE:                   Coordination Chemistry Reviews (2004),
                          248(13-14), 1421-1446
                          CODEN: CCHRAM; ISSN: 0010-8545
PUBLISHER:                Elsevier B.V.
DOCUMENT TYPE:            Journal
```

LANGUAGE: English

AB The search for rigid or flexible photoelectrochem. solar cell counter electrode (CE) alternatives is an ongoing process as studies in CE kinetic performance and stability seek to improve the overall efficiency of the solar cell, while also adapting to novel concepts and new materials. The dye-sensitized **TiO2** nanocryst. solar cell using an iodide/tri-iodide redox mediator served as the system of reference for a theor. characterization and computational simulation used to scrutinize CE performance, which was coupled by exptl. exploration of catalyst materials and different design options. Two basic approaches can be identified with respect to CE design. Firstly, there is the case where the catalyst has sufficient kinetic performance and can be used when deposited on any stable support material **current collector** even at monolayer quantities, and secondly, the case when the kinetics of the catalyst are insufficient to sustain the required currents and therefore the effective exchange c.d. must be enhanced by **internal surface area** increase, thus the need to impart porosity to either the catalyst material or the **current collector** or both. The kinetic/electrocatalytic performance of candidate catalyst materials, as well as the mass-transfer limitations of commonly applied cell configurations were exptl. determined in most cases. However, predictions have also been made by electrochem. simulation of a variety of given systems under steady-state operation, where the CE is examined as an integral part of the energy conversion system, making clear the implications of the varying phys. and geometric parameters of the comprising elements of the device, i.e. the porous photoelectrode, the spacer configuration and the CE, including also the nature and the properties of the electrolyte constituting their junction.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

REFERENCE COUNT: 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:550620 HCAPLUS Full-text

DOCUMENT NUMBER: 141:91859

TITLE: Oxidized **titanium** as a **cathodic current collector**

INVENTOR(S): Brown, W. Richard; Frysz, Christine A.; Smesko, Sally Ann; Takeuchi, Esther S.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 19 pp., Cont.-in-part of U.S. Ser. No. 918,139.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004131943	A1	20040708	US 2003-680698	20031007
US 2003113632	A1	20030619	US 2001-918139	20010730

PRIORITY APPLN. INFO.: US 2001-918139 A2 20010730

AB A **titanium substrate** having a thickened outer oxidation layer provided thereon by a treatment process performed either in an air atmospheric at elevated temps. or through electrolytic oxidation (anodization), is described. The thus conditioned **titanium substrate** serving as a **cathode current collector** for an electrode incorporated into an electrochem. cell exhibits improved elec. performance in comparison to the prior art techniques, i.e., elec. conducted carbon coated **titanium** screen and use of highly corrosion resistant materials, upon subsequent elevated temperature exposure.

IT **7440-32-6, Titanium**, uses **13463-67-7, Titanium oxide**, uses
RL: DEV (Device component use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)

RN 7440-32-6 HCAPLUS
CN Titanium (CA INDEX NAME)

Ti

RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (CA INDEX NAME)

O=Ti=O

IC ICM H01M004-66
ICS H01M004-74; H01M004-62; H01M004-48; H01M004-50; H01M004-52; H01M004-58; H01M004-54; H01M010-04
INCL 429245000; 429241000; 429231500; 429219000; 429220000; 429223000; 429231700; 429224000; 429217000; 429232000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST battery **cathode current collector**
oxidized **titanium**

IT Fluoropolymers, uses
Polyamides, uses
Polyimides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(binder; oxidized **titanium** as **cathodic current collector**)

IT Anodization
Battery **cathodes**
Primary batteries
(oxidized **titanium** as **cathodic current collector**)

IT Carbonaceous materials (technological products)
Metals, uses
Oxides (inorganic), uses
Sulfides, uses
RL: DEV (Device component use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)

IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)

IT 9002-84-0, Ptfe 24937-79-9, Polyvinylidene fluoride 25038-71-5,

Ethylene-tetrafluoroethylene copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(binder; oxidized **titanium** as **cathodic current collector**)

IT 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses 1344-70-3, Copper oxide **7440-32-6, Titanium**, uses 7440-44-0, Carbon, uses 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, **Titanium** sulfide (TiS2) 12068-85-8, Iron disulfide 12789-09-2, Copper vanadium oxide **13463-67-7, Titanium oxide**, uses 51311-17-2, Carbon fluoride 181183-66-4, Copper Silver vanadium oxide
RL: DEV (Device component use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)

IT 7782-42-5, Graphite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 12597-68-1, Stainless steel, uses
RL: MOA (Modifier or additive use); USES (Uses)
(powder; oxidized **titanium** as **cathodic current collector**)

L22 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:473085 HCAPLUS Full-text
DOCUMENT NUMBER: 139:39168
TITLE: Oxidized **titanium** as a **cathodic current collector**
INVENTOR(S): Brown, W. Richard; Frysz, Christine A.; Smesko, Sally Ann; Takeuchi, Esther S.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 18 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003113632	A1	20030619	US 2001-918139	200107 30
US 2004131943	A1	20040708	US 2003-680698	200310 07
PRIORITY APPLN. INFO.:			US 2001-918139 A2	200107 30

AB A **titanium substrate** having a thickened outer oxidation layer provided thereon by a treatment process performed either in an air atmospheric at elevated temps. or through electrolytic oxidation (anodization), is disclosed. The thus conditioned **titanium substrate** serving as a **cathode current collector** for an electrode incorporated into an electrochem. cell exhibits improved elec. performance in

comparison to the prior art techniques, i.e., elec. conducted carbon coated **titanium** screen and use of highly corrosion resistant materials, upon subsequent elevated temperature exposure.

IT **7440-32-6, Titanium**, uses **13463-67-7, Titanium oxide**, uses
RL: DEV (Device component use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)

RN 7440-32-6 HCAPLUS
CN Titanium (CA INDEX NAME)

Ti

RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (CA INDEX NAME)

O=Ti=O

IC ICM H01M004-66
ICS H01M004-70; H01M004-48; H01M004-50; H01M004-52; H01M004-54; H01M004-58; C25D011-34
INCL 429245000; 429241000; 429219000; 429220000; 429224000; 429231500; 429223000; 429231800; 429221000; 429231700
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72
ST battery **cathodic current collector**
oxidized **titanium**
IT Fluoropolymers, uses
Polyamides, uses
Polyimides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(binder; oxidized **titanium** as **cathodic current collector**)
IT Primary batteries
(lithium, Li-carbon fluoride; oxidized **titanium** as **cathodic current collector**)
IT Anodization
Battery **cathodes**
Oxidation, electrochemical
(oxidized **titanium** as **cathodic current collector**)
IT Carbonaceous materials (technological products)
Metals, uses
Oxides (inorganic), uses
Sulfides, uses
RL: DEV (Device component use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)
IT 9002-84-0, Ptfe 24937-79-9, Polyvinylidenefluoride 25038-71-5, Ethylene tetrafluoroethylene copolymer

RL: MOA (Modifier or additive use); USES (Uses)
(binder; oxidized **titanium** as **cathodic current collector**)

IT 1313-13-9, Manganese dioxide, uses **7440-32-6**, **Titanium**, uses 7440-44-0, Carbon, uses 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, **Titanium** sulfide (TiS2) 12068-85-8, Iron sulfide fes2 12789-09-2, Copper vanadium oxide **13463-67-7**, **Titanium oxide**, uses 51311-17-2, Carbon fluoride 181183-66-4, Copper Silver vanadium oxide
RL: DEV (Device component use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)

IT 7782-42-5, Graphite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(oxidized **titanium** as **cathodic current collector**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 12597-68-1, Stainless steel, uses
RL: MOA (Modifier or additive use); USES (Uses)
(powder; oxidized **titanium** as **cathodic current collector**)

L22 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:222427 HCAPLUS Full-text
DOCUMENT NUMBER: 122:13666
TITLE: Nanocrystalline ceramic films for efficient conversion of light into electricity
AUTHOR(S): Graetzel, Michael
CORPORATE SOURCE: Institut de Chimie Physique, Ecole Polytechnique Federale de Lausanne, Lausanne, 1015, Switz.
SOURCE: Journal of Sol-Gel Science and Technology (1994), 2(1/2/3), 673-7
CODEN: JSGTEC; ISSN: 0928-0707
PUBLISHER: Kluwer
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Transparent nanocryst. films of oxide semiconductors such as **TiO2** and Fe2O3 were prepared on a conducting glass support by a sol-gel procedure. The films are composed of nanometer-sized particles sintered together to allow for percolative charge carrier transport. The **internal surface** of these films is very high, roughness factors of the order of 1000 being readily obtained. Elec. polarization was applied for forward and reverse biasing of the films and the resulting optical changes were analyzed to derive their flat band potential. Band gap excitation of such nanocryst. semiconductors produces electron-hole pairs which migrate through the film to be **collected** as elec. **current** . Steady-state photolysis and time resolved laser techniques were applied to scrutinize the mechanism of light-induced charge separation within the nanostructure. When derivatized with a suitable chromophore, **TiO2** films give extraordinary efficiencies for the conversion of incident photons into elec. current, >90% for certain transition metal complexes within the wavelength range of their absorption band. The underlying phys. principles of these findings are discussed. Using this discovery, a new type of photovoltaic device was developed whose overall light to elec. energy conversion yield is 10% under simulated AM 1.5 solar radiation.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57

L22 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1984:595310 HCAPLUS Full-text

DOCUMENT NUMBER: 101:195310
TITLE: Rechargeable lithium/sulfur ammoniate battery
INVENTOR(S): Bennett, John E.; Harney, David E.; Mitchell, Thomas A.
PATENT ASSIGNEE(S): Diamond Shamrock Corp. , USA
SOURCE: U.S., 12 pp. Cont.-in-part of U.S. Ser. No. 210,739, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

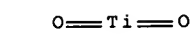
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4469761	A	19840904	US 1982-405882	198209 20
CA 1177534	A1	19841106	CA 1981-389004	198110 29
AU 8177775	A	19820603	AU 1981-77775	198111 23
DK 8105217	A	19820527	DK 1981-5217	198111 24
BR 8107621	A	19820824	BR 1981-7621	198111 24
ZA 8108150	A	19821027	ZA 1981-8150	198111 24
ES 507415	A1	19830601	ES 1981-507415	198111 24
FI 8103782	A	19820527	FI 1981-3782	198111 25
JP 57118374	A	19820723	JP 1981-189031	198111 25
IL 64359	A	19841031	IL 1981-64359	198111 25
PRIORITY APPLN. INFO.:			US 1980-210739 A2	198011 26

AB The title ambient-temperature battery using an alkali or alkaline-earth metal and S electrochem. pair comprises an anode of anhydrous liquid, a catholyte containing anhydrous S, and a cationic permeable separator. Thus, a battery prepared with a liquid anode of anhydrous NH3 containing Na, a catholyte of liquid anhydrous NH3 containing S, and a **Ti substrate cathode** coated with a mixture of Sn, **Ti**, and Ru oxides was repeatedly charged-discharged at charging voltage of 2.4-2.6 V and a discharging voltage of 2.0-1.5 V.

IT **7440-32-6**, uses and miscellaneous
RL: USES (Uses)
(**cathode current collector** from

oxide-coated, sulfur battery, ambient-temperature)
RN 7440-32-6 HCAPLUS
CN Titanium (CA INDEX NAME)

IT **13463-67-7**
RL: USES (Uses)
(**cathode current collector** from **titanium** coated with oxide mixture containing, sulfur battery, ambient-temperature)
RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (CA INDEX NAME)



IC H01M010-44
INCL 429050000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT **7440-32-6**, uses and miscellaneous
RL: USES (Uses)
(**cathode current collector** from oxide-coated, sulfur battery, ambient-temperature)
IT 1332-29-2 11113-84-1 **13463-67-7**
RL: USES (Uses)
(**cathode current collector** from **titanium** coated with oxide mixture containing, sulfur battery, ambient-temperature)

=>